

CLAIMS

1. An apparatus for evaluating a degree of work comfort by measuring myoelectric potentials during a work activity which is performed antagonistically by a pair of left and right muscles provided in a human body in bilaterally symmetrical relation, the apparatus comprising:

a pair of detection sensors for detecting the myoelectric potentials produced by actions of the pair of left and right muscles provided in the human body in bilaterally symmetrical relation during the work activity;

an amplifier for amplifying the pair of myoelectric potentials detected by the detection sensors;

a waveform processing unit for generating a synchronous contraction waveform of the pair of muscles from time-series waveforms of the pair of amplified myoelectric potentials; and

an evaluation unit for evaluating a level of the degree of comfort of the work activity from intensity information of the generated synchronous contraction waveform or from frequency information of the generated synchronous contraction waveform contained in a specified intensity range.

2. The apparatus for evaluating a degree of work comfort according to claim 1, wherein the evaluation unit calculates the intensity information of the generated synchronous contraction waveform or the frequency information of the generated synchronous contraction waveform at specified time intervals and evaluates the level of the degree of comfort of the work activity at the specified time intervals based on results of the calculation.

3. The apparatus for evaluating a degree of work comfort according to claim 1 or 2, wherein the waveform processing unit performs full-wave rectification with respect to the time-series waveforms of the pair of myoelectric potentials and designates the smaller one of respective values at the same time of the time-series waveforms of the pair of myoelectric potentials that have been subjected to the full-wave rectification as a signal value of the synchronous contraction waveform.

4. The apparatus for evaluating a degree of work comfort according to claim 3, wherein the waveform processing unit performs a normalizing process with respect to the time-series waveforms of the pair of amplified

myoelectric potentials by using a maximum myoelectric potential and generates the synchronous contraction waveform by using the time-series waveforms that have been subjected to the process.

5. The apparatus for evaluating a degree of work comfort according to claim 1 or 2, wherein the waveform processing unit performs full-wave rectification with respect to the time-series waveforms of the pair of myoelectric potentials and designates a geometric mean value of signal values at the same time of the time-series waveforms of the pair of myoelectric potentials that have been subjected to the full-wave rectification as a signal value of the synchronous contraction waveform.

6. The apparatus for evaluating a degree of work comfort according to any one of claims 1 to 5, wherein the work activity comprises steering of a wheel in driving a vehicle.

7. The apparatus for evaluating a degree of work comfort according to any one of claims 1 to 6, wherein the pair of muscles comprise deltoid muscles positioned in shoulders of the human body.

8. A method of evaluating a degree of work comfort by measuring myoelectric potentials during a work activity which is performed antagonistically by a pair of left and right muscles provided in a human body in bilaterally symmetrical relation, the method comprising:

a step of detecting the myoelectric potentials produced by actions of the pair of left and right muscles provided in the human body in bilaterally symmetrical relation during the work activity and amplifying the pair of myoelectric potentials;

a step of generating a synchronous contraction waveform of the pair of muscles from time-series waveforms of the pair of amplified myoelectric potentials; and

a step of evaluating a level of the degree of comfort of the work activity from intensity information of the generated synchronous contraction waveform or from frequency information of the generated synchronous contraction waveform of the generated synchronous contraction waveform contained in a specified intensity range.

9. The method of evaluating a degree of work comfort according to claim 8, wherein the step of evaluating the

level of the degree of comfort of the work activity includes calculating the intensity information or the frequency information of the generated synchronous contraction waveform at specified time intervals and evaluating the level of the degree of comfort of the work activity at the specified time intervals based on results of the calculation.

10. The method of evaluating a degree of work comfort according to claim 8 or 9, wherein the step of generating the synchronous contraction waveform includes performing full-wave rectification with respect to the time-series waveforms of the pair of myoelectric potentials and designating the smaller one of respective values at the same time of the time-series waveforms of the pair of myoelectric potentials that have been subjected to the full-wave rectification as a signal value of the synchronous contraction waveform.

11. The method of evaluating a degree of work comfort according to claim 10, wherein, in the step of generating the synchronous contraction waveform, the waveform processing unit performs a normalizing process with respect to the time-series waveforms of the pair of amplified

myoelectric potentials by using a maximum myoelectric potential and generates the synchronous contraction waveform by using the time-series waveforms that have been subjected to the process.

12. The method of evaluating a degree of work comfort according to claim 8 or 9, wherein the step of generating the synchronous contraction waveform includes performing full-wave rectification with respect to the time-series waveforms of the pair of myoelectric potentials and designating a geometric mean value of signal values at the same time of the time-series waveforms of the pair of myoelectric potentials that have been subjected to the full-wave rectification as a signal value of the synchronous contraction waveform.

13. The method of evaluating a degree of work comfort according to any one of claims 8 to 12, wherein the work activity comprises steering of a wheel in driving a vehicle.

14. The method of evaluating a degree of work comfort according to any one of claims 8 to 13, wherein the pair of muscles comprise deltoid muscles positioned in shoulders of the human body.